

LONG TERM PAVEMENT PERFORMANCE PROGRAM DIRECTIVE



For The Technical Direction Of The LTPP Program



Program Area: MATERIALS

Directive Number: M-12

Date: 28 October 1996

**Subject: (1) Resilient modulus Testing of Asphalt Concrete Cores
(2) Samples for the Materials Reference Library**

(1) Resilient Modulus Testing of Asphalt Concrete Cores

The materials sampling and testing guidelines for SPS experiments published prior to May 1992 contain outdated procedures for resilient modulus testing. Specifically, the early guidelines required one indirect tensile test followed by resilient modulus testing of 3 companion cores. The P07 protocol currently in force requires indirect tensile tests for all cores after completion of the resilient testing. The requirements now in-place are as follows:

"Generally, a sample group of four cores are retrieved from the same general location on the SPS project. Of these four cores, one is tested in indirect tension to determine the stress levels to be used for resilient modulus testing of the other three cores. After completion of the resilient modulus testing, an indirect tensile strength test shall be performed on each core. After the completion of all tests on these samples, the cores may be disposed of in an appropriate manner."

It should be noted that each core taken from a SPS project should have a Core Examination and Thickness (Protocol P01) and a Bulk Specific Gravity (Protocol P02) test performed.

The number of cores to be obtained for Protocol P07 testing is correct in the pre-1992 guidelines.

The assignment of laboratory testing (Laboratory Testing Sheet L04) for those samples must reflect the needs of the current P07 protocol.

(2) Samples for the Materials Reference Library

The materials sampling and testing guidelines for the SPS-5 and SPS-6 experiments require a quantity of asphalt concrete and constituent materials to be sent to the MRL for future research. The following details the current policy on sampling and shipping of overlay materials for long-term storage in the Materials Reference Library (MRL) for SPS-5 and SPS-6 projects:

Special Sampling Requirements

During overlay construction, additional sampling of the asphalt materials will be conducted. This includes the asphalt concrete binder course (if applicable) and the finished asphalt concrete surface. It should be noted that this requirement refers to layers of asphalt materials. Different lifts of the same material are not to be considered independent layers. The samples obtained will be used as a record of the materials being used on the project and will be sent to a special facility for long-term storage. This sampling requirement refers to each individual mix design and type of asphalt cement (virgin and recycled) as appropriate.

The material to be obtained for this purpose shall consist of the following:

- 1. 3-19 l (5 gal) pails of asphalt cement (from the plant),*
- 2. 1-208 l (55 gal) drum of the combined and graded coarse and fine aggregate (from the plant),*
- 3. 3-19 l (5 gal) pails of the finished mix uncompacted (from the paver or haul vehicle immediately prior to lay-down).*

One sample of asphalt cement shall be obtained from the plant for each type of asphalt cement used on the project. Therefore, if only one type of asphalt cement was used for both the binder and surface course layers on the project, only one sample unit (3-19 l [5 gal] pails) of the asphalt cement shall be obtained and this one sample will represent both asphalt layers. The asphalt cement shall be sampled from the plant using AASHTO

T40, "Sampling Bituminous Materials," after the asphalt has been heated for mixing.

One sample of the combined and graded aggregates shall be obtained from the plant for each asphalt layer (and each mix design) of the project. This material shall be sampled in conformance with applicable portions of AASHTO T2, "Sampling Aggregates." For drum plants, the aggregates should be obtained from the charging (inclined) conveyor using the bypass chute, if possible. Otherwise, the sample should be taken from the belt on the charging conveyor. For batch plants, the aggregates can be sampled from the inclined conveyor at the dryer.

The sample of finished asphalt concrete mix used in the construction of the test sections shall be sampled from the paver or haul vehicle immediately prior to lay-down. These materials shall be sampled in conformance with AASHTO T168, "Sampling Bituminous Paving Mixtures."

Containers (barrels and buckets) for the storage of these samples will be provided to the participating state agencies by the LTPP Materials Reference Library (MRL) at no cost to the state. These containers are of special manufacture to accommodate long-term storage. It will be necessary that scheduling information be furnished to the LTPP Materials Reference Library contractor as soon as this information is available. This information should, at the minimum, contain: (1) date containers needed, (2) state agency contact name, and (3) shipping address and (4) telephone number. The contact names and telephone numbers for the LTPP Materials Reference Library are as follows:

<i>CONTACT NAME</i>	<i>AFFILIATION</i>	<i>PHONE NO.</i>
<i>Mr. Rod Soule</i>	<i>Nichols Consulting Engineers Chtd.</i>	<i>702-358-7574</i>
<i>Mr. Jim Nichols</i>	<i>Nichols Consulting Engineers Chtd.</i>	<i>702-329-4955</i>
<i>Mr. Cal Berge</i>	<i>FHWA LTPP Regional Engineer</i>	<i>702-329-5019</i>

The SPS-5 and SPS-6 samples to be shipped to the MRL will be by a common carrier and the cost will be borne by the MRL contractor (Nichols Consulting Engineers Chtd.). The participating agency should contact the MRL office for exact coordination and sample shipping details. Any of the three names listed above may be contacted but it is preferable that Mr. Rod Soule be the primary contact point for the participating agencies.

A copy of Field Operations Information Form 1 (Appendix B) should be completed and included with the shipment and another copy of the form should be mailed separately. This will allow a trace of the shipment if it does not arrive in a timely manner.

Summary

These instructions supersede the instructions currently in the SPS-5 and SPS-6 materials sampling and testing guidelines.

Any questions regarding this directive should be submitted to the FHWA Pavement Performance Division with a copy to the LTPP Technical Assistance Contractor (TAC).

Prepared by: Aramis López, Jr.

Approved by:

Monte Symons
LTPP Team Leader